



Ethyl Petroleum Additives
Sauget, Illinois 62201
(618) 274-4000

October 23, 1985

Mr. Nicholas Longo
On-Scene Coordinator
Attention SHE-12
U.S. EPA
Region V
230 South Dearborn Street
Chicago, IL 60604

RE: Administrative Order V-W-84-007
Groundwater Sampling Plan

Dear Mr. Longo:

Ethyl Petroleum Additives submits the attached proposals to install groundwater sampling wells for the Sauget, Illinois plant. The proposal to install the wells was prepared by IT Corporation and is Attachment I. The groundwater sampling program is attachment II.

At our meeting on August 22, 1985, we discussed additional soil sampling requirements. To meet these requirements we propose to do the following additional sampling and analysis.

Sample Point I - We will sample this location at the 36-42 inch and 48-54 inch levels. These samples will be analyzed for 2,3,7,8-TCDD. The sample with the highest concentration of 2,3,7,8-TCDD (if any) will be analyzed for tetra-octa dioxin and furans.

Tracks 23 - We will take four additional surface samples at the following location on Track 23: intersections at grid lines 1200N, 1400N and before junction with Track 24 and after junction with Track 21. These samples will be taken at the edge of the track bed and analyzed for 2,3,7,8-TCDD.

We will also proceed with taking a resample at location 33 (1080N - 315E). This will be a surface sample to be analyzed for 2,3,7,8-TCDD. If this sample shows TCDD concentrations of less than 1.0 PPB, we will request clearing the area bounded by 1000N, 1100N, 285E, and 330E from construction restraints.

October 23, 1985

Mr. Nicholas Longo
On Scene Coordinator
U.S. EPA

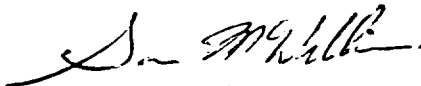
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Ethyl Petroleum Additives, as proposed and discussed in our August 22, 1985 meeting, will proceed with on-site specific construction projects within the designated "significantly contaminated" area without prior submittal to the Agency specific proposals for each project. We will however, continue to use previous approved plans that address health and safety concerns, provisions for restricting the movement of soils, decontamination and disposition of contaminated soils and materials when working in this area.

Ethyl Petroleum Additives still believes that areas contaminated at the 1-5 PPB 2,3,7,8-TCDD do not pose a health hazard to workers and hence should be free of construction restraints. We would like to continue to discuss this with the Agency with the hope to reduce the "significantly contaminated" area to the boundaries as discussed in our meeting on August 22, 1985.

If you should have any questions or need further information, please contact me at 618-274-4000.

Sincerely,



Sam McWilliams
Plant Manager

SMcW:dj

cc: Norman Niedergang, Chief
CERCLA Enforcement Section
Attention: 5HE-12
U.S. EPA
Region 5
230 South Dearborn Street
Chicago, IL 60604

BCC: D.C. Bach
D.E. Park
S. McWilliams
H.F. Mason
M.J. Bonaventure
J.L. Sparks

ADDITIONAL SAMPLING PROGRAM

ETHYL PETROLEUM ADDITIVES

SAUGET, ILLINOIS PLANT

Introduction

Ethyl Petroleum Additives (Ethyl) proposes to install three shallow groundwater sampling wells at the locations indicated by IT Corporation on Figure 1 of Attachment I. The sampling well screens are to be set so that the screened interval will be submerged during low groundwater conditions. The depth to the groundwater will be noted on the groundwater sampling record and retained on site.

The groundwater sampling wells are being installed to verify the absence, or quantify the presence of, 2,3,7,8-TCDD. This sampling is being performed because the analytical results of previous soil sampling indicated the presence of 2,3,7,8-TCDD in the area of the black tanks. The soil and groundwater sampling are being conducted consistent with the USEPA Dioxin Strategy. The presence of 2,3,7,8-TCDD is due to the blending of 2,4,5-T and 2,4-D to produce Agent Orange while the plant property was under the ownership of Monsanto Corporation.

Well Location

Three wells will be installed in close proximity to the "area of concern" to determine the presence of 2,3,7,8-TCDD in the groundwater. Each of these wells is located close enough to the area of concern to detect the influence on groundwater quality of the 2,3,7,8-TCDD in the soil, particularly in consideration of the length of time that has elapsed since Monsanto ceased blending Agent Orange on the plant property. The chosen locations avoid drilling and disturbing soil in the significantly contaminated area identified by USEPA Region V in a letter of October 2, 1985.

Analytical Parameters

Ethyl proposes an initial screening of the groundwater for the presence of 2,3,7,8-TCDD from the residual remaining in the soil. A single sample from each well will be analyzed for 2,3,7,8-TCDD and the congeners - tetra, penta, hexa, hepta and octachlorinated dibenzo-p-dioxins and the respective dibenzofurans. If any 2,3,7,8-TCDD or its congeners are detected, the analytical results will be expressed both as individual homologues and total equivalent 2,3,7,8-TCDD using methods outlined in the Chlorinated Dioxins Work Group position document entitled "Risk Assessment Procedures for Mixtures of Chlorinated Dioxins and Dibenzofurans (CCDs and CDFs)." The sample will be preserved following procedures specified in accordance with the "Handbook for Sampling and Sample Preservation of Water and Wastewater" (USEPA, 1982).

Additional Sampling Program
Ethyl Petroleum Additives
Sauget, Illinois Plant
Page Two

Sampling Scheme

The screening samples will quantify the presence or establish the absence of 2,3,7,8-TCDD in accordance with the Dioxin Strategy. No further groundwater sampling or analysis will be performed until the analytical results from these initial samples are obtained. If 2,3,7,8-TCDD or its congeners are not found at the limit of detection in the groundwater, no additional groundwater sampling is proposed.

ATTACHMENT I

INSTALLATION OF GROUNDWATER SAMPLING WELLS

ETHYL PETROLEUM ADDITIVES

SAUGET, ILLINOIS PLANT

October 18, 1985

Mr. Donald E. Park
Corporate Director of Environmental Affairs
Ethyl Corporation
P. O. Box
Baton Rouge, Louisiana

Project No. 5001

Groundwater Testing Program
Tank Area
Ethyl Edwin Cooper Plant
Sauget, Illinois

Dear Mr. Park:

International Technology (IT) Corporation submits herein a groundwater testing program for the Ethyl Petroleum Additives Division (Ethyl), Sauget, Illinois plant. Our groundwater testing program includes location, design, drilling, well installation and sampling procedures, and completion documentation. The program is based upon our review of pertinent data related to the site, regulatory status experience with similar situations, and experience near the plant site.

Location

The objective of the groundwater testing program is to obtain samples of groundwater immediately adjacent to Unit 268 and the nearby Black Tanks at the referenced plant to determine the presence, if any, of tetrachlorodibenzo-p-dioxin (TCDD) in groundwater. In order to achieve this objective, we propose to place one well immediately upgradient and two wells immediately downgradient from the tank area as shown on Figure 1.

Three wells are needed in order to define the direction and rate of groundwater flow. Further, we propose that the well locations be placed outside the diked area which may have contained spills of materials containing TCDD.

Design

The well design is shown on Figure 2 and consists of a sump, screen, riser pipe, cap, sand or gravel pack, bentonite seal, grout, locking cap and protective posts. The length of casing and depth of the well is planned so that the screened interval will be submerged during low groundwater conditions. The purpose of the sump is to collect any soil/sediments which may enter the well through the gravel pack and slotted screen. The sump will extend at least two feet but not more than ten feet below the screen. The slots in the screen should be 0.015 inches. The sand will be rated clean sand per ASTM designation A139 and should contain less than five (5) percent weight calcareous (CaCO_3) material. The well diameter will be two (2) inches and the construction material will be polyvinyl chloride (PVC) pipe with flush screw threaded joints.

Drilling Procedure

The drilling crew will use Level C protective clothing during drilling which includes impermeable coveralls, gloves, boots, eye protection and hard hat. A respirator will be carried by each worker and any additional protective measures required by the plant in the non-dioxin contaminated areas. If any odors or unusual conditions are noted during drilling operations, the plant Health and Safety Officer will be contacted.

The borehole will be advanced by continuously pushing Shelby tube or split-spoon samplers until the groundwater table is encountered. The onsite field engineer/geologist will classify the extruded soil samples. Soil samples from critical horizons will be retained for moisture content, grain size, Atterberg limits and permeability testing.

It is anticipated that the drilling will occur during the fall season which is the seasonal low ground water elevation period. Thus, the depth at which the groundwater table is encountered will serve as the approximate top of the 5 foot screened interval. After the groundwater table is encountered, the borehole will be reamed to ten inches in diameter using standard rotary wash drilling methods. A six inch diameter PVC casing will be placed in the borehole and cemented in place using a cement/bentonite mix. Centralizers or approved equivalent will be used to determine that the casing is placed in the approximate center of the borehole. The grout will be introduced using the tremie method to assure returns to the ground surface and allowed to dry overnight. The hole will then be flushed of all drilling fluid and the drill rig steam cleaned prior to advancing the hole below the water table.

Well Installation

The hole will then be advanced approximately thirteen (13) feet below the protective casing, with sampling and rotary wash. The well, with centralizers, will be installed as shown in Figure 2 followed by the gravel pack and a two foot bentonite seal. The remainder of the annular space will be sealed using a cement/bentonite grout.

After the grout is allowed to dry, the well will be purged of well drilling fluids by flushing with air and/or clean (potable) water. The well will be tested for performance by completing a well sensitivity test. This test will also provide an estimate of the formation permeability.

Subsequent to drilling, protective posts and the locking cap will be placed on the well. The location of the well will be surveyed to ± 1.0 feet. The vertical elevation will be surveyed to ± 0.05 feet.

Groundwater Sampling

At least one week after the well groundwater elevation has stabilized, following development and sensitivity testing, the monitoring wells will be purged and sampled. The wells will be purged of at least three well volumes and sampled using a dedicated PVC bailer. Samples will be placed in one liter glass containers, (with Teflon-lined cap), placed on ice, and shipped to the IT or contract laboratory. One duplicate, sample and one field blank will be included. Sample labels, chain-of-custody, and sample collection forms will be completed.


Completion Documentation

After well construction and sampling IT will provide a Well Completion Documentation Report. The report will include Field Activity Daily Logs, Boring Logs, Well Completion Diagrams, Sensitivity Test Results, Groundwater Flow Calculations and Sampling Documentation. If IT performs the sample analyses, the Laboratory Analytical Report will be included as well as an evaluation of the extent of any contamination.

October 18, 1985

IT Corporation appreciates the opportunity to provide this scope for a groundwater testing program to Ethyl. We look forward to assisting you further. If you have any questions, please do not hesitate to contact me.

Very truly yours,


Pressley L. Campbell, Ph.D., P.E.
Regional Technical Manager

PLC:jlc

DRAWN BY
A.B.L.
8/28/85
CHECKED BY
C.A.L.
APPROVED BY
J.C.L.
DRAWING NUMBER
BE 5001-A1

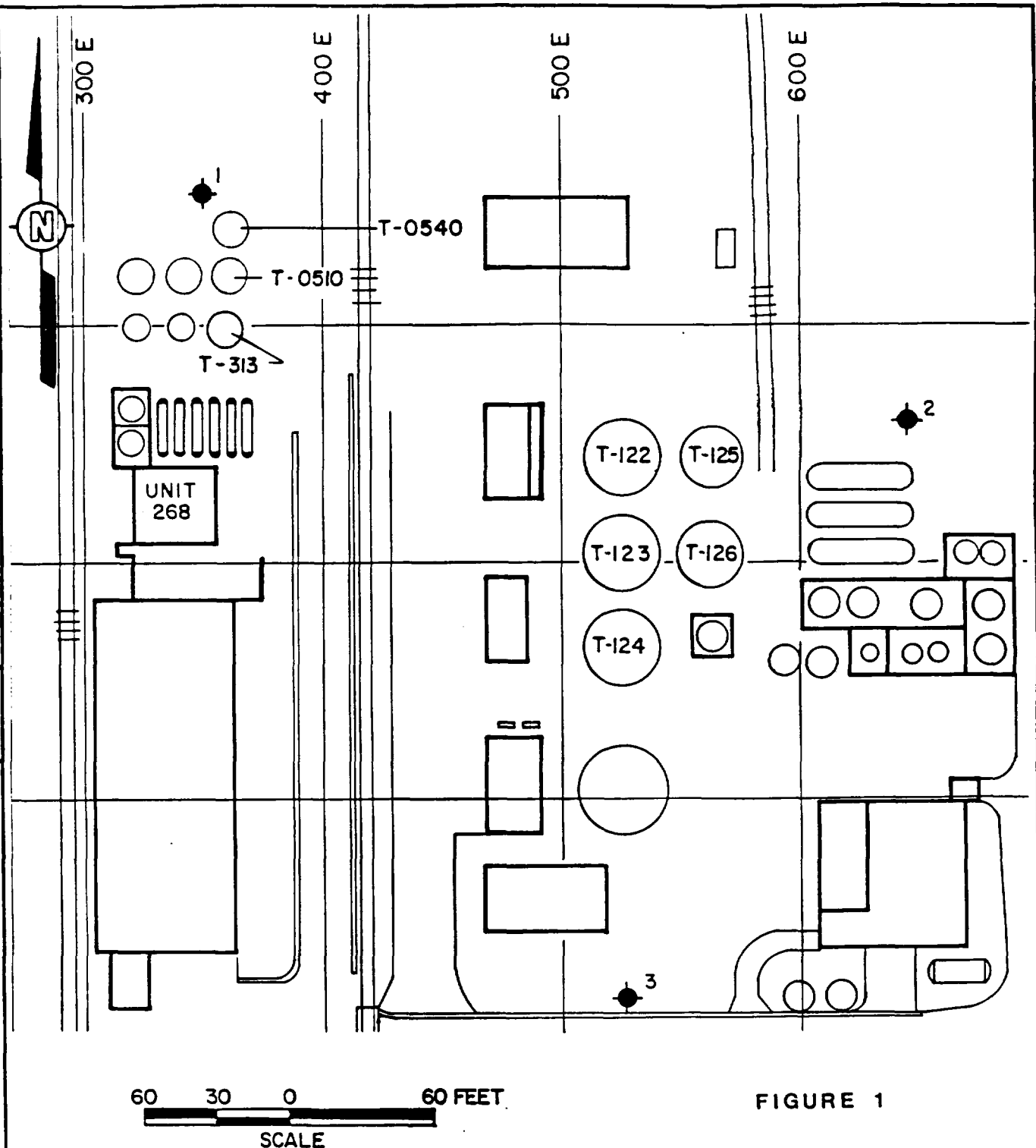


FIGURE 1

PROPOSED WELL LOCATIONS

PREPARED FOR

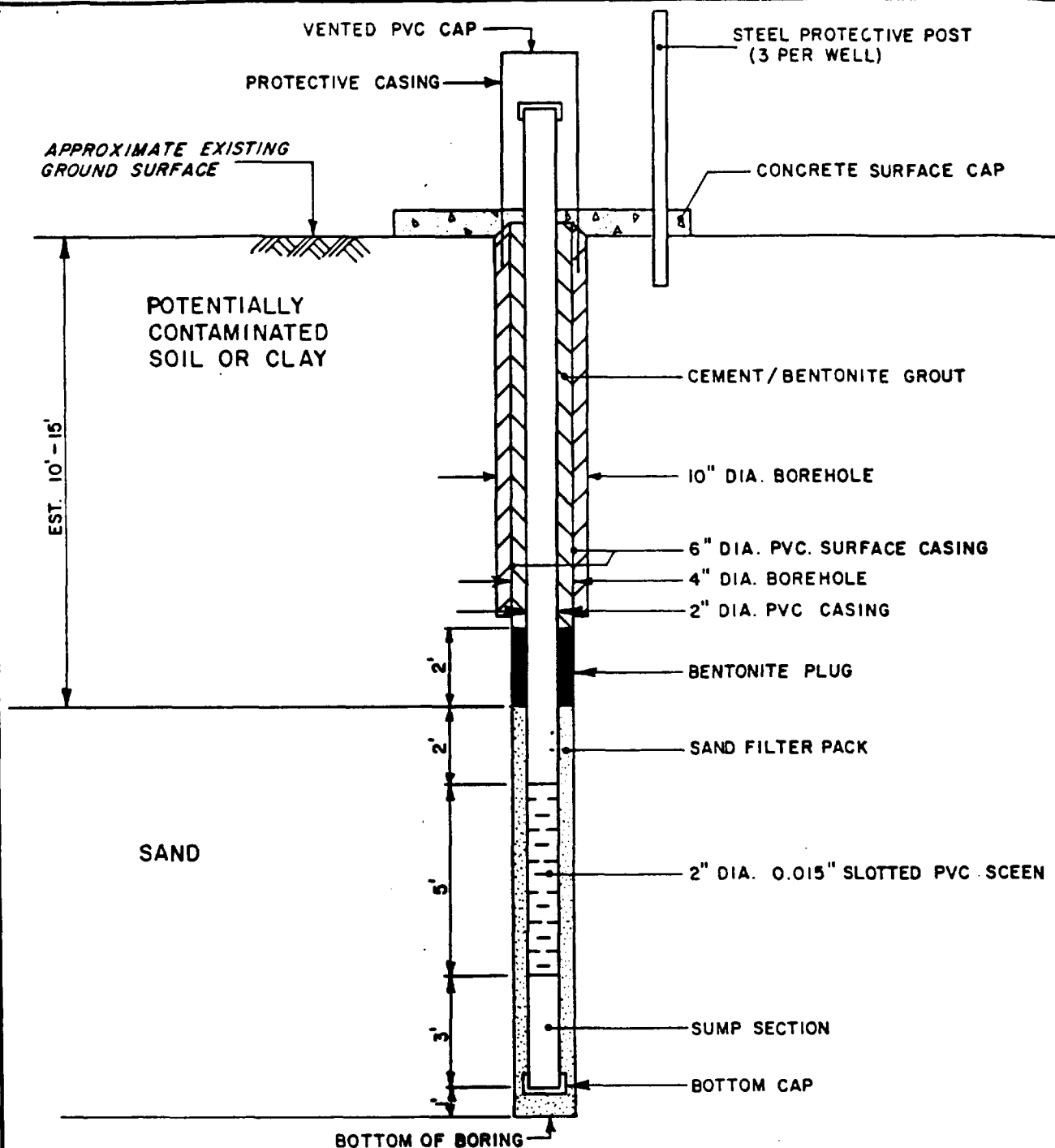
ETHYL PETROLEUM
ADDITIVES DIVISION
SAUGET, ILLINOIS

LEGEND

— SYMBOL FOR PROPOSED
WELL LOCATION (POSITION APPROXIMATE)



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NOT TO SCALE

FIGURE 2

WELL DESIGN

PREPARED FOR
**ETHYL PETROLEUM
 ADDITIVES DIVISION
 SAUGET, ILLINOIS**

65360

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Do Not Scale This Drawing



... Creating a Safer Tomorrow

ATTACHMENT II
GROUNDWATER SAMPLING PROCEDURES
ETHYL PETROLEUM ADDITIVES
SAUGET, ILLINOIS PLANT

GROUNDWATER SAMPLING PROCEDURES

ETHYL PETROLEUM ADDITIVES

SAUGET, ILLINOIS PLANT

Groundwater Sampling Procedure

The sampling procedure proposed will provide consistent sampling that is designed to provide a reliable indication of groundwater quality.

A dedicated bailer will be purchased for each sampling well. The bailer will be constructed of inert plastic with a teflon and rubber valve bottom. A nylon rope will be used to lower and raise the bailer by hand.

Prior to obtaining a well sample, approximately 20 bails of water will be removed from each well. This represents three well volumes.

A groundwater sampling record will be completed for each well sampled. This sampling record will contain the following information and will be retained on site with the analytical results.

Well Number _____

Date Sampled _____

Sampler _____

Time Sampled _____ AM or PM

Name(s) _____

Affiliation _____

Name(s) _____

Affiliation _____

Sample Submitted to _____

Control Lab _____

R&D Lab _____

Other (Specify) _____

Water Depth (from top of casing) _____ ft.

Sample Temperature _____ °C

Sample pH _____

Sample Method _____ Bailed _____ Pumped _____ Other (Specify) _____

Preservatives Added: _____ None _____ Specify _____

Thermal Preservation: _____ Transport in Ice Chest _____ None

Color _____ Colorless _____ Other _____

Turbidity _____ Clear _____ Turbid _____

Sediment _____ Absent _____ Present _____

Other Appearances _____

Reason for Sampling: _____ Quarterly Sampling _____ Semi-Annual Sampling

Other (Specify) _____

Sample Containers Used:

Number

Size

Type

Groundwater Sampling Procedures
Ethyl Petroleum Additives
Sauget, Illinois Plant
Page Three

Sample Preservation and Shipment

Groundwater sample preservation and shipment procedures will be in accordance with the requirements in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) and Standard Methods for the Examination of Water and Wastewater, 15th Edition, the American Public Health Association (1985).

Chain of Custody Control

Chain of Custody procedures will be instituted for groundwater samples from collection through analysis. These procedures have been described in a previous submission to your office from our contract laboratory, Envirodyne.

Groundwater Surface Elevation

The groundwater elevations will be measured and recorded when a groundwater sample is taken.

Groundwater Sampling Well Integrity

Each groundwater sampling well will be secured with a locking cap following sampling. This cap will be removed only to obtain a sample and will assure that no foreign matter is introduced into the monitoring well.